

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1 (currently amended) A reactive adhesive, which is solid at room temperature, and which comprises:

(i) at least one reaction product having free isocyanate groups obtained by reacting reactants consisting essentially of:

(a) diphenylmethane diisocyanate ~~including~~ comprising at least 95 wt.% of 2,4'-diphenylmethane diisocyanate; and

(b) at least one compound selected from the group consisting of polyether-polyols having number average molecular weights less than 1,000, polyalkylene diols having number average molecular weights less than 1,000, and polyester-polyols which are crystalline, partly crystalline or vitreously amorphous;

(c) optionally, one or more of tackifying resins containing active hydrogen atoms, low molecular weight polymers of olefinically unsaturated monomers containing hydroxyl groups, and polyether-polyols having a number average molecular weight greater than 1,000;

wherein said polyester-polyols are prepared by condensation of adipic acid, sebacic acid, glutaric acid, azelaic acid, suberic acid, undecanedioic acid, dodecandioic acid, 3,3-dimethylglutaric acid, terephthalic acid, isophthalic acid, hexahydrophthalic acid, dimer fatty acid or mixtures thereof, with ethylene glycol, propylene glycol, diethylene glycol, triethylene glycol, dipropylene glycol, 1,4-butanediol, 1,6-hexanediol, 1,8-octanediol, 1,10-dicanediol, 1,12-dodecanediol, dimer fatty alcohol, glycerol, trimethylolpropane or mixtures thereof and

wherein said polyether-polyols are selected from the group consisting of ~~comprise at least one of~~ polytetramethylene glycols, polypropylene glycols, copolymers of ethylene oxide and propylene oxide, and ~~or~~ alkylene diols and

(ii) at least one adhesion-intensifying additive which is capable of migration; said adhesion-intensifying additive comprising polyisocyanate having a vapour pressure of less than 10^{-6} hPa at 20°C.

2 (original). The adhesive of claim 1, wherein said adhesive has a concentration of monomeric diisocyanate of less than 0.25 wt.%.

3 (original). The adhesive of claim 1, wherein at least 97.5 wt. % of said diphenylmethane diisocyanate is 2,4'-diphenylmethane diisocyanate.

4 (original). The adhesive of claim 1, wherein the NCO to OH ratio of the 2,4'-diphenylmethane diisocyanate to the sum of the polyols is 1.1 to 1.9.

5 (original). The adhesive of claim 1, wherein the NCO to OH ratio of the 2,4'-diphenylmethane diisocyanate to the sum of the polyols is 1.2 to 1.75.

6 (original). The adhesive of claim 1, wherein less than 0.3 wt.% of 2,2'-diphenylmethane diisocyanate is present.

7 (original). The adhesive of claim 1, wherein less than 0.1 wt.% of 2,2'-diphenylmethane diisocyanate is present.

8 (original). The adhesive of claim 1, wherein less than 0.06 wt.% of 2,2'-diphenylmethane diisocyanate is present.

9 (cancelled).

10 (currently amended). The adhesive of claim 1, further comprising at least one reaction product of 2,4'-diphenylmethane diisocyanate and at least one compound selected from the group consisting of polyester-polyol and polyether-polyol,

wherein said polyester-polyols are prepared by condensation of adipic acid, sebacic acid, glutaric acid, azelaic acid, suberic acid, undecanedioic acid, dodecandioic acid, 3,3-dimethylglutaric acid, terephthalic acid, isophthalic acid, hexahydrophthalic acid, dimer fatty acid or mixtures thereof, with ethylene glycol, propylene glycol, diethylene glycol,

triethylene glycol, dipropylene glycol, 1,4-butanediol, 1,6-hexanediol, 1,8-octanediol, 1,10-dicanediol, 1,12-dodecanediol, dimer fatty alcohol, glycerol, trimethylolpropane or mixtures thereof and

wherein said polyether-polyols are selected from the group consisting of polytetramethylene glycols, polypropylene glycols, copolymers of ethylene oxide and propylene oxide, and alkylene diols.

11 (currently amended). The adhesive of claim 4, further comprising at least one reaction product of 2,4'-diphenylmethane diisocyanate and at least one compound selected from the group consisting of polyester-polyols and polyether-polyols, wherein said at least one compound is liquid at room temperature and has a molecular weight of greater than 1,000,

wherein said polyester-polyols are prepared by condensation of adipic acid, sebacic acid, glutaric acid, azelaic acid, suberic acid, undecanedioic acid, dodecandioic acid, 3,3-dimethylglutaric acid, terephthalic acid, isophthalic acid, hexahydrophthalic acid, dimer fatty acid or mixtures thereof, with ethylene glycol, propylene glycol, diethylene glycol, triethylene glycol, dipropylene glycol, 1,4-butanediol, 1,6-hexanediol, 1,8-octanediol, 1,10-dicanediol, 1,12-dodecanediol, dimer fatty alcohol, glycerol, trimethylolpropane or mixtures thereof and

wherein said polyether-polyols are selected from the group consisting of polytetramethylene glycols, polypropylene glycols, copolymers of ethylene oxide and propylene oxide, and alkylene diols.

12 (original). The adhesive of claim 1, wherein the reaction product is crystalline, partly crystalline, or vitreously amorphous.

13 (original). The adhesive of claim 1, wherein the adhesive is a hot melt adhesive.

14-15 (cancelled)

16 (previously presented). The adhesive of claim 1, wherein the adhesion-intensifying additive is present in less than 30 wt.%.

17 (previously presented). The adhesive of claim 1, wherein the adhesion-intensifying additive is present in less than 10 wt.%.

18 (previously presented). The adhesive of claim 1, wherein the adhesion-intensifying additive is at least one compound selected from the group consisting of thiophosphoric acid tris-(p-isocyanato-phenyl ester), triphenylmethane 4,4',4''-triisocyanate, isomeric trifunctional homologues of diphenylmethane diisocyanate (MDI), isocyanato-bis-((4-isocyanatophenyl)methyl)-benzene, 2-isocyanato-4-((3-isocyanatophenyl)methyl)-1-((4-isocyanatophenyl)methyl)-benzene, 4-isocyanato-1,2-bis((4-isocyanatophenyl)methyl)-benzene, 1-isocyanato-4-((2-isocyanatophenyl)methyl)-2-((3-isocyanatophenyl)methyl)-benzene, 4-isocyanato- α -1-(o-isocyanatophenyl)- α -3-(p-isocyanatophenyl)-m-xylene, 2-isocyanato-(o-isocyanatophenyl)- α' -(p-isocyanatophenyl)-m-xylene, 2-isocyanato-1,3-bis((2-isocyanatophenyl)methyl)-benzene, 2-isocyanato-1,4-bis((4-isocyanatophenyl)methyl)-benzene, isocyanato-bis((isocyanatophenyl)methyl)-benzene, 1-isocyanato-2,4-bis((4-isocyanatophenyl)methyl)-benzene, adducts of diisocyanates and low molecular weight triols, adducts of aromatic diisocyanates and triols, an adduct of trimethylolpropane and glycerol, a biuretization product of hexamethylene diisocyanate (HDI), an isocyanuration product of HDI, and a trimerization product of isophorone diisocyanate (IPDI), or mixtures thereof.

19 (previously presented). The adhesive of claim 1, wherein the adhesion-intensifying additive is an adduct of 2,4'-diphenylmethane diisocyanate and a diol with a molecular weight of less than 2,000.

20 (original). The adhesive of claim 19, wherein, the content of monomeric diisocyanate in the adduct is less than 2 wt.%.

21 (original). The adhesive of claim 19, wherein, the content of monomeric diisocyanate in the adduct is less than 1 wt.%.

22 (previously presented). The adhesive of claim 1, wherein the adhesion-intensifying additive is an adduct of 2,4'-diphenylmethane diisocyanate and a polyol with a functionality of less than 3.3.

23 (original). The adhesive of claim 22, wherein the polyol with a functionality of less than 3.3 is trimethylolpropane or glycerol.

24 (original). The adhesive of claim 22, wherein, the content of monomeric diisocyanate in the adduct is less than 2 wt.%.

25 (original). The adhesive of claim 22, wherein, the content of monomeric diisocyanate in the adduct is less than 1 wt.%.

26 (previously presented). The adhesive of claim 1, wherein the adhesion-intensifying additive is an organofunctional alkoxysilane.

27 (original). A process for the preparation of an adhesive according to claim 1, comprising:
contacting the reactants and preventing the reaction temperature from exceeding
160°C.

28 (original). A process for the preparation of an adhesive according to claim 1, comprising:
contacting the reactants and preventing the reaction temperature from exceeding
130°C.

29 (original). A process for the preparation of an adhesive according to claim 1, comprising:
contacting the reactants and preventing the reaction temperature from exceeding
110°C.

30 (previously presented). A process for the preparation of an adhesive according to claim 1, comprising:

forming the reaction product; and thereafter
adding the adhesion-intensifying additive.

31 (original). The adhesive of claim 1, wherein said adhesive has a concentration of monomeric diisocyanate of less than 0.5 wt.%.

32 (currently amended). The adhesive of claim 1, wherein said ~~reactants include at least one~~
optional component (c) is a tackifying resin containing active hydrogen atoms.

33 (currently amended). The adhesive of claim 1, wherein said ~~reactants include at least one~~
optional component (c) is a low molecular weight polymer of olefinically unsaturated monomer containing hydroxyl groups.

34 (currently amended). The adhesive of claim 1, wherein said ~~reactants include at least one~~
optional component (c) is a polyether-polyol having a number average molecular weight greater than 1,000.

35 (cancelled).